

Figure FL 3011
Reports
RAX

APQ-56 Improvement Program

May 1, 1957

SYSTEM

ALL 1.18 Resolution Problem - STAT

No change since last report.

XH-2 2.17 Recorder Cooling - STAT
 XH-3
 NAVY

Drafting is working on bringing XH-2 and XH-3 recorder drawings up to date to show the cooling modification. Still waiting for parts from Model Shop to complete modification of remaining XH-2 recorders and cameras--estimated date of this modification is 5/10.

XH-2 4.12 R. F. High Voltage Power Supply - STAT
 XH-3
 NAVY

One R. F. unit has been enclosed with Rexolite sheet and filled with a DC-200 silicon fluid. Unfortunately the circuit exhibited signs of malfunctioning before a complete temperature vs output voltage curve data could be taken; however, before cutting into the mold of Rexolite to attempt to repair the fault the unit was subjected to thermo cycling tests to obtain an idea as to how the bonding cement and Rexolite mold hold up under extreme temperature conditions. Thermo cycling tests have not been completed as yet.

All 6.18 P. E. Cell - STAT

Three P. E. Cell Test Sets are being built and tested to establish the sensitivity of P. E. Cells. All sets have been built. During calibration procedure it was found that the internal voltage regulator had to be located external due to heating in the test set. These external regulators have been completed and the test sets are again in the process of being calibrated. The correlation of any one set with the same bulb over 45 minutes of running time after warm-up is approximately $\pm 5\%$. Correlation between sets with any one bulb is now being performed.

All 12.17 Pulse Cable Connectors - STAT

No change since last report.

Time 13.18 AGC - Friedmann, STAT
 Shared

Design a new AGC that will be less susceptible to radio-frequency interference and to stray audio pick-up.

Drafting is working on the detailing of the new AGC chassis and accessories. The Model Shop is building several cables using the new Microdot connectors and the new miniature coaxial cable.

Time 17.14 Wide Band Receiver - STAT
Shared
No Change since last report.

All 19.14 Receiver Design - STAT
Performance data on the pre-amplifier, post-amplifier and video-amplifier has been obtained for each unit operating individually. Regeneration has been observed in the non-linear post-amplifier. The actual operation of the post-amplifier is not being affected but the stability of this unit is marginal.
These three units will now be cascaded and their operation observed under various signal conditions.

All 20.11 Pulse Width - STAT
As originally envisaged, this study had as its objective the generation of an R. F. envelope with a square shape and time width of 0.1 μ s max. Utilizing the hard tube modulator driving the 6799 magnetron, it has been determined that a pulse with a duration less than 0.1 μ s can be generated. Since the driving pulse rise time (.06 μ s min.) is in the same order of magnitude of the required pulse width (.1 μ s max.), it is impossible to generate square R.F. envelope.
The information obtained in the hard tube study will now be applied to the breadboarding of a practical line type modulator. It is estimated that tangible results can be expected in one week.

All 21.12 Pulse Width (Quick Fix) STAT
No change since last report.

All 22.9 Resolution Test Set - STAT
A means of measuring recorder resolution is needed in the field. Eight Resolution Test Sets are being built by S. R. for the Time Shared System, using commercial type construction. A change in circuit design was completed last week. Construction is progressing.
Handbook has not yet been started.

Time 24.4 Deflection Driver Drift - STAT
Shared
XH-3
NAVY
Three film runs of approximately 30 minutes duration were made in addition to recent film for system transfer characteristics, all at reduced filament voltage for 6AU6 tubes. One of the three shows a very slight closing of the traces after an opening after approximately twenty minutes of "on" time. On the transfer characteristic film a slight closing (after an opening) appears after approximately 40 minutes of "on" time. Both of these were made with wire-wound feed back resistors installed. A repeat of this same test did not show a repeat of the closing.
A change of filament voltage from 6.5 to 5 volts on the 4X250 output tubes shows no change of trace position. Checks of filament voltage variation on the 6AU6 tubes under normal operation shows no change of voltage. Apparently much longer film runs are necessary to isolate the source or sources of trouble.

[illegible]